Technical Publication Transfer

Using:

Hughes Missile Systems' Data

MIL-M-28001A (SGML)
MIL-R-28002A (Raster)
MIL-D-28003 (CGM)

Quick Short Test Report
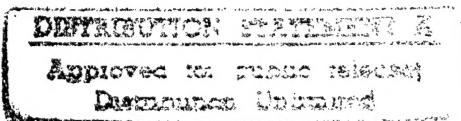
07 June 1993

Prepared for

Electronic Systems Center

19960822 172

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07 June 1993

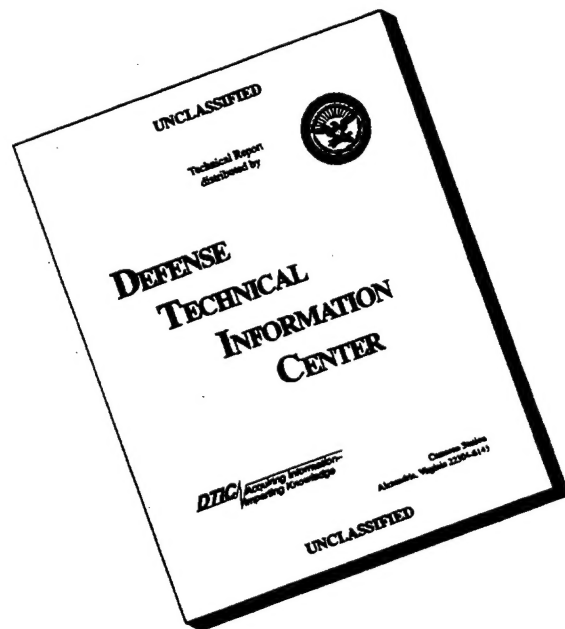**Prepared By**
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Contents

1. Introduction

1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-Cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

1.2 Purpose

The purpose of the informal test, reported in this QSTR, was to analyze Hughes Missile System's interpretation and use of the CALS standards, in transferring technical publication data. Hughes used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTB technical staff on a 9-track magnetic tape.

2. Test Parameters

Test Plan: AFCTB 93-058

Date of Evaluation: 8 June 1993

Evaluator:

George Elwood
Air Force CALS Test Bed
DET 2 HQ ESC/ENCP
4027 Colonel Glenn Hwy
Suite 300
Dayton OH 45431-1672

Data Originator:

Marilyn Lopez
Hughes Missile Systems Company
M/S T13
P O Box 7928
Canoga Park CA 91309-7928
(818) 702-3131

Data Description:

Technical Manual Test
     1 Document Declaration file
     1 Document Type Definition (DTD)
     1 Text file
     2 Raster files
     3 Computer Graphics Metafile (CGM) files

Data Source System:

    1840

        HARDWARE
           Unknown
        SOFTWARE
           Unknown

    Text/Standard Generalized Markup Language (SGML)

        HARDWARE
           Sun *SparcStation*
        SOFTWARE
           Interleaf

Raster
>>> **HARDWARE**
>>>>> Sun *SparcStation*
>>> **SOFTWARE**
>>>>> Interleaf

CGM
>>> **HARDWARE**
>>>>> Sun *SparcStation*
>>> **SOFTWARE**
>>>>> Interleaf

Evaluation Tools Used:

MIL-STD-1840A (TAPE)
>>> SUN 3/280
>>>>> AFCTN *Tapetool v1.2.9 UNIX*
>>>>> XSoft *CAPS/CALS v40.4*
>>>>> Texas Instruments (TI) *Tapetool v1.0.1*
>>> PC 486/50
>>>>> AFCTN *Tapetool v1.2.9 DOS*

MIL-M-28001 (SGML)
>>> SUN SparcStation 2
>>>>> ArborText *ADEPT v4.2.1*
>>> PC 486/50
>>>>> Datalogics *ParserStation v3.36*
>>>>> Exoterica *XGMLNormalizer v1.2e3.2*
>>>>> Exoterica *Validator v2.0 ex1*
>>>>> McAfee & McAdam *Sema Mark-it v2.3*
>>>>> Public Domain *sgmls*

MIL-R-28002 (Raster)
>>> SUN SparcStation 2
>>>>> ArborText *g42tiff*
>>>>> Carberry *CADLeaf Plus v3.1*
>>>>> AFCTN *validg4*
>>>>> AFCTN *calstb.475*
>>>>> IGES Data Analysis (IDA) *IGESView v3.0*
>>>>> Island Graphics *IslandPaint v3.0*
>>> PC 486/50
>>>>> AFCTN *validg4*
>>>>> IDA *IGESView Windows*
>>>>> Inset Systems *HiJaak v2.1*
>>>>> Inset Systems *HiJaak Window v1.0*
>>>>> Corel *Ventura Publisher*

MIL-D-28003 (CGM)
    SUN SparcStation 2
        ArborText *cgm2draw*
        Island Graphics *IslandDraw v3.0*
        Carberry *CADLeaf Plus v3.1*
    PC 486/50
        Advance Technology Center
            (ATC) *MetaView R 1.12*
        ATC *MetaCheck R 2.05*
        Software Publishing Corporation
            (SPC) *Harvard Graphics v3.05*
        Inset Systems *HiJaak v2.1*
        Inset Systems *HiJaak v1.0 Windows*
        Micrografx *Designer v3.1*
        Micrografx *Charisma v2.1*
        Corel *Ventura Publisher*

Standards Tested:
MIL-STD-1840A
MIL-M-28001A
MIL-R-28002A
MIL-D-28003

5

3. 1840A Analysis

3.1 External Packaging

The tape arrived at the Air Force CALS Test Bed (AFCTB) en-
closed in a box in accordance with ASTM D 3951. The exte-
rior of the box was marked with a magnetic tape warning
label, as required by MIL-STD-1840A, para. 5.3.1.3.

The tape was enclosed in a barrier bag as required by
MIL-STD-1840A, para. 5.3.1.2. Inspection of the tape reel
showed the label indicating the recording density, as re-
quired by MIL-STD-1840A, para. 5.3.1. Enclosed in the box
was a packing list showing all files recorded on the tape.

3.2 Transmission Envelope

The 9-track tape received by the AFCTB contained MIL-STD-
1840A files. The files were named per the standard conven-
tions.

3.2.1 Tape Formats

The tape was run through the AFCTN *Tapetool v1.2.9* utility,
in conjunction with Interleaf's software. 16 errors were
reported while evaluating the contents of the tape labels.
All of these errors relate to the use of lower case letters
in the tape header and EOF labels. The error is an ANSI
X3.27 error generated by the Interleaf software. Interleaf
corrected this problem on a later software version.

```
HDR1D001              CALS0100010001000100 93117 00000 000000Ileaf Ver 1.7
```

*** ERROR (ANSI X3.27; 8.1) - Label contains invalid character(s).

The tape was read using XSoft's *CAPS read1840A* utility
without any reported errors.

The tape was read using TI's *Tapetool v1.0.1* with the same errors being reported.

The physical structure of the tape does not meet the CALS MIL-STD-1840A requirements.

3.2.2 Declaration and Header Fields

No errors were found in the Document Declaration file and data file headers.

4. IGES Analysis

No Initial Graphics Exchange Specification (IGES) files were included on this tape.

5. SGML Analysis

The AFCTB has several parsers available for evaluating submitted DTD and Text files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. These products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings unless specified in the report. Changes to DTD or Text files required by each system are not documented in the report.

The DTD file from the tape was evaluated using Datalogics' *ParseStation*. The initial pass generated an error which was traced to entities and definition without a space. When the space was added the DTD and Text file parsed without a reported error, but some warnings were generated. See the Appendix for the log file.

```
<!ELEMENT internatlstd        - o       (para+)           >
<!ATTLIST internatlstd%secur;                              >
                  ^added space here
```

The Text and DTD files from this document were evaluated using Exoterica's *Validator exl* parser with no reported errors and some reported warnings. See Appendix for log file.

The Text and DTD files from this document were tested using Exoterica's *XGMLNormalizer* parser with no reported errors.

The Text and DTD files from this document were tested using McAfee & McAdam's *Sema Mark-it* parser with no reported errors.

The Text and DTD files from the tape were evaluated using the Public Domain *sgmls* parser with no reported errors.

The Text file was imported into ArborText's *Adept* software. The DTD and Text files were parsed without a reported error. The document was compiled and published using this software and a generic FOSI. When the published document was compared to the submitted copy, several differences were noted. The titles in the text were printed in lower case. This is the same way they appeared in the Text file. The ArborText publisher did not automatically upper case the text on the cover and section titles. Because of differences in publishing systems, all titles should be included in the text as they should be in completed document.

The SGML files meet the CALS MIL-M-28001A specification.

6. Raster Analysis

The tape contained two Raster files. Both files were evaluated using the AFCTN *validg4* utility. This program reported that both files meet the CALS MIL-R-28002A specification.

The files were read into the AFCTN *calstb.475* viewing utility. No problems were noted.

The AFCTB has several tools for viewing Raster files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings.

The files were converted using ArborText's *g42tiff* utility without a reported error. The resulting files were read into Island Graphics' *IslandPaint*, displayed and printed.

The Raster files were read into Carberry's *CADLeaf* software without a reported error. The images were displayed and printed.

The files were read into IDA's *IGESView* and *IGESView for Windows* without a reported error.

The files were read into Inset Systems' *HiJaak for Windows* without a reported error.

The files were converted using Inset Systems' *HiJaak for DOS* into an IMG format without a reported error. The resulting files were read into Corel's *Ventura Publisher*, displayed and printed.

The Raster files were converted using Rosetta Technologies' *Prepare* without a reported error. The resulting files were read into *Preview*, displayed and printed.

The Raster files meet the CALS MIL-R-28003A specification.

7. CGM Analysis

The tape contained three CGM files. The files were evaluated using ATC's *MetaCheck* with CALS options. This utility reported that all three files meet the CALS MIL-D-28003 specification.

The CGM files were evaluated using the beta AFCTN *validcgm* utility with some reported errors.

The AFCTB has several tools for viewing CGM files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor and indication of CALS capability. All operations were performed using the default settings.

The CGM files were converted using ArborText's *cgm2draw* utility without a reported error. The resulting files were read into Island Graphics' *IslandDraw*, displayed and printed. The files had notable font errors with file D001C003 displaying text overflow outside the defined boundaries.

The files were viewed using ATC's *MetaView* software. File D001C003 had critical errors in the area of fonts.

The files were read into Carberry's *CADLeaf* software and displayed. File D001C003 had notable text overflow. This text overflow problem can be corrected with a setting in the preferences...dialog box, per Bryan DiAntonio, Product Manager of Carberry Technology.

The files were read into Inset Systems' *HiJaak for Windows* without a reported error. However, none of the files would display on the screen.

The files were imported directly into Island Graphics' *IslandDraw* without a reported error. No text overflow problems were noted on the screen or hard copies.

The files were imported into the Micrografx *Designer* and *Charisma* without a reported error, except for D001C005 which

generated a translation error.   The other two files dis-
played and printed without boxes around the text.

According to Michael Harrison of Micrografx, "The version of
Micrografx Designer used with this report has been replaced
with Designer version 4.0 which reads and prints these files
successfully."

The files were imported into SPC's *Harvard Graphics 3.05*
without a reported error except for file D001C005.   This
file reported clipped objects and point adjustment errors.
The resulting image was acceptable.   File D001C003 had text
overflow problems and missing lines between blocks.

The files were imported into Corel's *Ventura Publisher*
without a reported error.

The files were reported as meeting the CALS MIL-D-28003
specification.   Text overflow problems were noted in many of
the commercial software tools available in the AFCTB.

8. Conclusions and Recommendations

The physical tape structure had basic ANSI X3.27 errors. The CALS header files were all correct. Because of the tape header and EOF errors, the tape does not meet the CALS standards.

The SGML files meet the CALS MIL-M-28001A specification.

The Raster files meet the CALS MIL-R-28002A specification.

The CGM files meet the CALS MIL-D-28003 specification.

Because of the errors in the basic tape, the tape does not meet the CALS MIL-STD-1840A requirements.

9.   Appendix A - Tapetool Report Logs

9.1   Tape Catalog

Air Force CALS Test Network Catalog Evaluation - Version 1.2; Release 9 (O)

    Standards referenced:
      MIL-STD-1840A (1987) - Automated Interchange of Technical Information
      ANSI X3.27 (1987) - File Structure and Labeling of Magnetic Tapes
                          for Information Interchange
      ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Fri Jun 4 15:04:56 1993

MIL-STD-1840A File Catalog

File Set Directory: /cals/u129/Set013

Page: 1

File Name	File Type	Record Format/ Length	Block Length/Total	Selected/ Extracted
D001	Document Declaration	D/00260	02048/000001	Extracted
D001R001	Raster	F/00128	02048/000009	Extracted
D001C002	CGM	F/00080	00800/000003	Extracted
D001C003	CGM	F/00080	00800/000007	Extracted
D001R004	Raster	F/00128	02048/000008	Extracted
D001C005	CGM	F/00080	00800/000002	Extracted
D001T006	Text	D/00260	02048/000019	Extracted
D001G007	DTD	D/00260	02048/000027	Extracted

Catalog Process terminated normally.

9.2 Tape Evaluation Log

Air Force CALS Test Network Tape Evaluation - Version 1.2; Release 9 (O)
  Standards referenced:
    ANSI X3.27 (1987) - File Structure and Labeling of Magnetic Tapes
                        for Information Interchange
    ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Fri Jun 4 15:04:48 1993
ANSI Tape Import Log

Allocating tape drive /dev/rmt0...

/dev/rmt0 allocated.

VOL1CALS01   4

  Label Identifier: VOL1
  Volume Identifier: CALS01
  Volume Accessibility:
  Owner Identifier:
  Label Standard Version: 4

HDR1D001   CALS0100010001000100 93117 00000 000000Ileaf Ver 1.7

*** ERROR (ANSI X3.27; 8.1) - Label contains invalid character(s).

  Label Identifier: HDR1
  File Identifier: D001
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0001
  Generation Number: 0001
  Generation Version Number: 00
  Creation Date: 93117
  Expiration Date: 00000
  File Accessibility:
  Block Count: 000000
  Implementation Identifier: Ileaf Ver 1.7

HDR2D0204800260   00

  Label Identifier: HDR2
  Recording Format: D
  Block Length: 02048
  Record Length: 00260

   Offset Length: 00

************ Tape Mark ***************

  Actual Block Size Found = 2048 Bytes.

  Number of data blocks read = 1.

************ Tape Mark ***************

EOF1D001   CALS0100010001000100 93117 00000 000001Ileaf Ver 1.7

*** ERROR (ANSI X3.27; 8.1) - Label contains invalid character(s).

   Label Identifier: EOF1
   File Identifier: D001
   File Set Identifier: CALS01
   File Section Number: 0001
   File Sequence Number: 0001
   Generation Number: 0001
   Generation Version Number: 00
   Creation Date: 93117
   Expiration Date: 00000
   File Accessibility:
   Block Count: 000001
   Implementation Identifier: Ileaf Ver 1.7

EOF2D0204800260   00

   Label Identifier: EOF2
   Recording Format: D
   Block Length: 02048
   Record Length: 00260
   Offset Length: 00

                    <<<<< PART OF LOG REMOVED HERE >>>>>

************ Tape Mark ***************

############ End of Volume CALS01 #############

############ End Of Tape File Set #############

Deallocating /dev/rmt0...

Tape Import Process terminated with 16 error(s), 0 warning(s),
and 0 note(s).

9.3 Tape File Set Validation Log

Air Force CALS Test Network File Set Evaluation - Version 1.2; Release 9 (O)

```
  Standards referenced:
    MIL-STD-1840A (1987) - Automated Interchange of Technical Information

Fri Jun  4 15:04:56 1993
MIL-STD-1840A File Set Evaluation Log
File Set: Set013

Found file: D001
Extracting Document Declaration Header Records...
Evaluating Document Declaration Header Records...

srcsys: HUGHES MISSILE SYSTEMS COMPANY, C.P., CA
srcdocid: AFCTN_test2
srcrelid: NONE
chglvl: ORIGINAL
dteisu: 19930308
dstsys: Air Force CALS Test Bed, Wright-Patterson AFB, OH 45433
dstdocid: AFCTN_test2
dstrelid: NONE
dtetrn: 19930428
dlvacc: NONE
filcnt: T1, G1, R2, C3
ttlcls: UNCLASSIFIED
doccls: UNCLASSIFIED
doctyp: TEST DOCUMENT
docttl: Interleaf CALS System Maintenance
```

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

```
Evaluating numbering scheme...
No errors were encountered during numbering scheme evaluation.
Numbering scheme evaluation complete.

Checking file count...
No errors were encountered during file count verification.
File Count verification complete.

No errors were encountered in Document D001.

No errors were encountered in this File Set.

MIL-STD-1840A File Set Evaluation Complete.
```

10. Appendix B - Detailed SGML Analysis

10.1 Datalogics Parser Log

```
                    SGML Document Type Definition Parser
                              Version 3.36
                Copyright (c) Datalogics 1988, 1989, 1990, 1991
                          An SGML System Conforming to
                      International Standard ISO 8879
                      Standard Generalized Markup Language

Log file: '9358.LOG'
SDO File: 'ctndecl.sdo'
Namecase General is yes.
Namecase Entity is no.
Parsing DTD file: '9358.dtd'
<!DOCTYPE doc Parsing DOCTYPE DOC

DTD0096: The generic ID ARBTEXT has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID HRULE has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID SHORTTITLE has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID CONTASSURPG has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID REFDOC has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID CFGPGE has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID COVERINDEX has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID STALOC has not been used in any content
         model, inclusion, or as a doctype element.
DTD0096: The generic ID TESTCODE has not been used in any content
         model, inclusion, or as a doctype element.
This DTD conforms to the ISO 8879 standard

DTO file '9358.DTO' created

closing statistics:
    Capacity points:              62200
    Bytes of DTO file string space:  11599
    SGML descriptor blocks:       6414
```

Document Type Definition is compliant and parsed normally.

Program status code: 0.

10.2   Exoterica Validator exl Parser

```
<!-- Entity has no name, system id or public id in formal file -->.
<!-- **Warning** in "9358.sgm", line 1057:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "ARBTEXT".
-->
<!-- **Warning** in "9358.sgm", line 1057:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "CFGPGE".
-->
<!-- **Warning** in "9358.sgm", line 1057:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "CONTASSURPG".
-->
<!-- **Warning** in "9358.sgm", line 1057:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "COVERINDEX".
-->
<!-- **Warning** in "9358.sgm", line 1057:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "ENTRYTBL".
-->
<!-- **Warning** in "9358.sgm", line 1057:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "HRULE".
-->
<!-- **Warning** in "9358.sgm", line 1057:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
   The element is "REFDOC".
-->
<!-- **Warning** in "9358.sgm", line 1057:
   An element is not allowed in the document instance because it does not
   appear in any accessible content model or it is completely excluded.
```

```
    The element is "SHORTTITLE".
-->
<!-- **Warning** in "9358.sgm", line 1057:
    An element is not allowed in the document instance because it does not
    appear in any accessible content model or it is completely excluded.
    The element is "STALOC".
-->
<!-- **Warning** in "9358.sgm", line 1057:
    An element is not allowed in the document instance because it does not
    appear in any accessible content model or it is completely excluded.
    The element is "TESTCODE".
-->
<!-- **Warning** in "9358.sgm", line 1607:
    There is no element with an IDREF or IDREFS attribute value equal to a
    specified ID value.
    The unreferenced ID attribute value is "HEART1".
-->
<!-- 11 warnings reported. -->
```
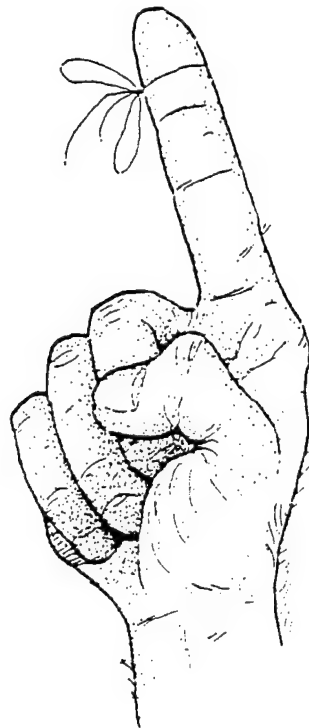
10.3 ArborText Output

CALS Test Network - Test 2

TECHNICAL MANUAL

HMSC Maintenance manual

interleaf cals

system maintenance

For CTN Use Only

february 1993

10.3.1 ArborText Output

CHAPTER 1

SECTION I introduction

1.1 north west of downtown

Southern California is internationally known for it's moderate climate and diverse topography. It is a place of many landscapes. Easily, one could play in the sand at the beach during the morning hours, have lunch at an alpine ski resort in the nearby m ountains, and enjoy a home style cooked meal at a high desert cafe in the early evening. All that and be home in time to watch the evening news on the local television station.

There are many coastal valleys in Southern California. Many of them are not directly influenced by the mild on-shore conditions of the Pacific Ocean and are thus more arid. They are, however, a mecca for farmers, ranchers, and urban dwellers. Most of t he farms and ranches have made way for the urbanites, those who wish to forego city living.

The City of Angels is a sprawling area of concrete and steel. The heart of the city is nested in the foothills of the San Gabriel Mountains, and at one time overlooked the Pacific Ocean. Gentle afternoon breezes visit the area on a daily basis, making i t a very pleasurable environment to live, work and play. It has long been known as a place of diverse ethnic groups. Industries of equal diversity have enjoyed favorable business conditions. The ambience of the city is laid back, relaxed. But a close e xamination would reveal a community hard at work maintaining and improving a lifestyle that has made it great.

North West of downtown is a sprawling valley. Once inhabited by peaceful native peoples since ancient times, the ever exploring Spaniards found this valley worthy enough to establish a mission there. The San Fernando Mission is part of the network of mi ssions that the Spanish established on the coastal regions of California extending from San Diego the San Francisco. The connecting road between the California missions is known as " El Camino Real", or " The King's Road". Today, the mission is a beautifully preserved landmark.

Ultimately, the mission's vast land holdings gave way to the San Fernando Valley Farming Company and other, much smaller rural enterprises. At one time mile after mile of citrus farms, horse ranches, and corn fields occupied the once desert landscape. T he small towns of San Fernando, Van Nuys, Canoga Park, and Calabasas existed within the orange groves,

serving as a sign post to what was to follow. After World War II the farm company and other land owners sold sections of their holdings to real estate d evelopers, and the orange trees gave way to ranch houses in the suburbs. Thus, the San Fernando Valley as we know it today. A few of the citrus trees remain, mostly as landscaping on homeowners property.

1.2 the commute

It defies simple logic that one has to leave more than two hours before work and drive less than thirty miles in order to be on time. Especially when most people drive cars that will easily do more than one hundred miles per hour. The answer to this min- dless query is simple; the city of Los Angeles alone has more than 3.5 million inhabitants, most of which work approximately the same hours. A vast majority of these people drive their own cars on freeways that mostly have only four lanes. It is relative ly easy to see why traffic and smog have become synonymous with Los Angeles. Not to mention frustration and high blood pressure.

For the benefits of a quieter life style and less costly real estate, more and more Angelenos are moving out of the city limits and into the less populated areas of the county. Some move even further, to the neighboring counties of Ventura, Kern, San Ber nadino, and Orange. This puts an even more bizarre twist to the commuter nightmare. It is not uncommon for a person to make 150 mile round trip to work, on a daily basis. This is good news for automobile manufacturers and oil companies.

The rewards, however, outweigh the headaches. The quiet serenity of a small high desert ranch or the crystal beauty of a mountain chalet make the long drive to work worth while for these nomadic souls. Time spent not commuting or working is even more sp ecial. Family life or a sporting life style is enhanced. Sleep is definitely better.

Public transportation is, to our municipal leaders, the key to easing the commuting nightmare. Untold sums of money have been spent improving bus service and building rail systems within the City of Los Angeles. Commuter networks have been established t o encouraged people to car pool or use public transportation. These entities have had a favorable impact. Let's try to forget about the rail system that Los Angeles once had, but disassembled in the 1950's, known as the Red Car.

11. Appendix C - Detailed Raster Analysis

11.1 File D001R001/D001R004

11.1.1 Output HiJaak/Ventura Publisher

12.   Appendix D - Detailed CGM Analysis

12.1   File D001C003

12.1.1   Parser Log MetaCheck

```
MetaCheck Version 2.05 -- CGM/MIL-D-28003 Conformance Analyzer
Copyright 1988-91 CGM Technology Software
Execution Date: 06/05/93      Time:  13:52:00

Metafile Examined    : i:\9358\c003.cgm

Pictures Examined    : All
Elements Examined    : All
Bytes    Examined    : All

====================== Trace Report ======================

Tracing not selected.

============= CGM Conformance Violation Report =============

No Errors Detected

========== CALS CGM Profile (MIL-D-28003) Report ============

No profile discrepancies detected.

================ Conformance Summary Report ================

MetaCheck Version 2.05 -- CGM/MIL-D-28003 Conformance Analyzer
Copyright 1988-91 CGM Technology Software
Execution Date: 06/05/93      Time:  13:52:03

Name of CGM under test: i:\9358\c003.cgm
Encoding             : Binary

Pictures Examined    : All
Elements Examined    : All
Bytes    Examined    : All

BEGIN METAFILE string : "Version 5.42, am_cgm.sty, 04/16/93 19:35:15"
METAFILE DESCRIPTION  : "Interleaf Inc. MDL/G CGM 1992 ***
                        MIL-D-28003/BASIC-1"
```

Picture 1 starts at octet offset 392; string contains: "am"

Conformance Summary : This file conforms to the CGM specification.
                        This file meets the CALS CGM Profile (MIL-D-28003).

Summary of Testing Performed and Errors Found:

          1 Pictures Tested
        323 Elements Tested
       4664 Octets Tested

```
                =====================================
                |    No Errors Were Detected    |
                =====================================
```

================ End of Conformance Report ==================

12.1.2 validcgm Log

```
Analysis for file c003.cgm using table table
ERROR: invalid times used per CGM (2), std B
ERROR: invalid times used per Picture (2), std B
(14, 260)         (1, 12, 12)     Metafile Defaults Replacement
ERROR: illegal in this state (2), std B
ERROR: required precursor (0, 3) not yet seen
(14.1, 0)         (2, 6, 8)       VDC Extent (0, 0) (32767, 32767)
ERROR: invalid times used per CGM (3), std B
ERROR: invalid times used per Picture (3), std B
(15, 276)         (1, 12, 6)      Metafile Defaults Replacement
ERROR: illegal in this state (2), std B
ERROR: required precursor (0, 4) not yet seen
(15.1, 0)         (5, 11, 2)      Text Precision  Stroke
(0, 1) occurred 1 time
(0, 2) occurred 1 time
(0, 3) occurred 1 time
(0, 4) occurred 1 time
(0, 5) occurred 1 time
(1, 1) occurred 1 time
(1, 2) occurred 1 time
(1, 3) occurred 1 time
(1, 4) occurred 1 time
(1, 5) occurred 1 time
(1, 6) occurred 1 time
(1, 7) occurred 1 time
```

```
(1,  8)  occurred 1 time
(1,  9)  occurred 1 time
(1, 10)  occurred 1 time
(1, 11)  occurred 1 time
(1, 12)  occurred 3 times
(1, 12)  occurred illegally 2 times
(1, 13)  occurred 1 time
(1, 15)  occurred 1 time
(2,  1)  occurred 1 time
(2,  2)  occurred 1 time
(2,  3)  occurred 1 time
(2,  4)  occurred 1 time
(2,  5)  occurred 1 time
(2,  6)  occurred 2 times
(2,  6)  occurred illegally 1 time
(2,  7)  occurred 1 time
(3,  1)  occurred 1 time
(4,  1)  occurred 143 times
(4,  4)  occurred 58 times
(4,  7)  occurred 34 times
(5,  3)  occurred 47 times
(5,  4)  occurred 1 time
(5, 11)  occurred 1 time
(5, 11)  occurred illegally 1 time
(5, 14)  occurred 1 time
(5, 15)  occurred 1 time
(5, 16)  occurred 1 time
(5, 18)  occurred 1 time
(5, 22)  occurred 2 times
(5, 23)  occurred 3 times
(5, 28)  occurred 1 time
(5, 29)  occurred 1 time
(5, 34)  occurred 1 time
```
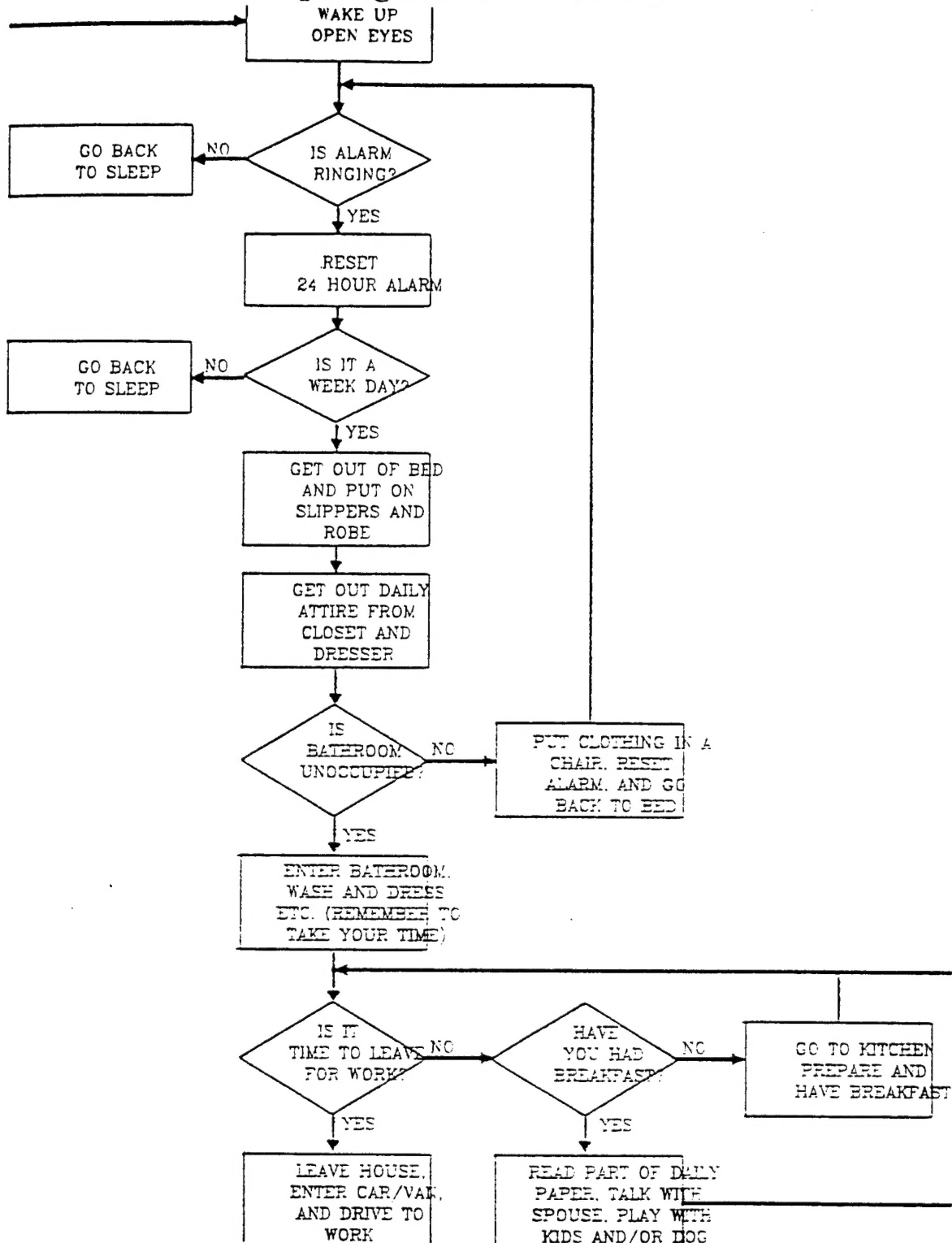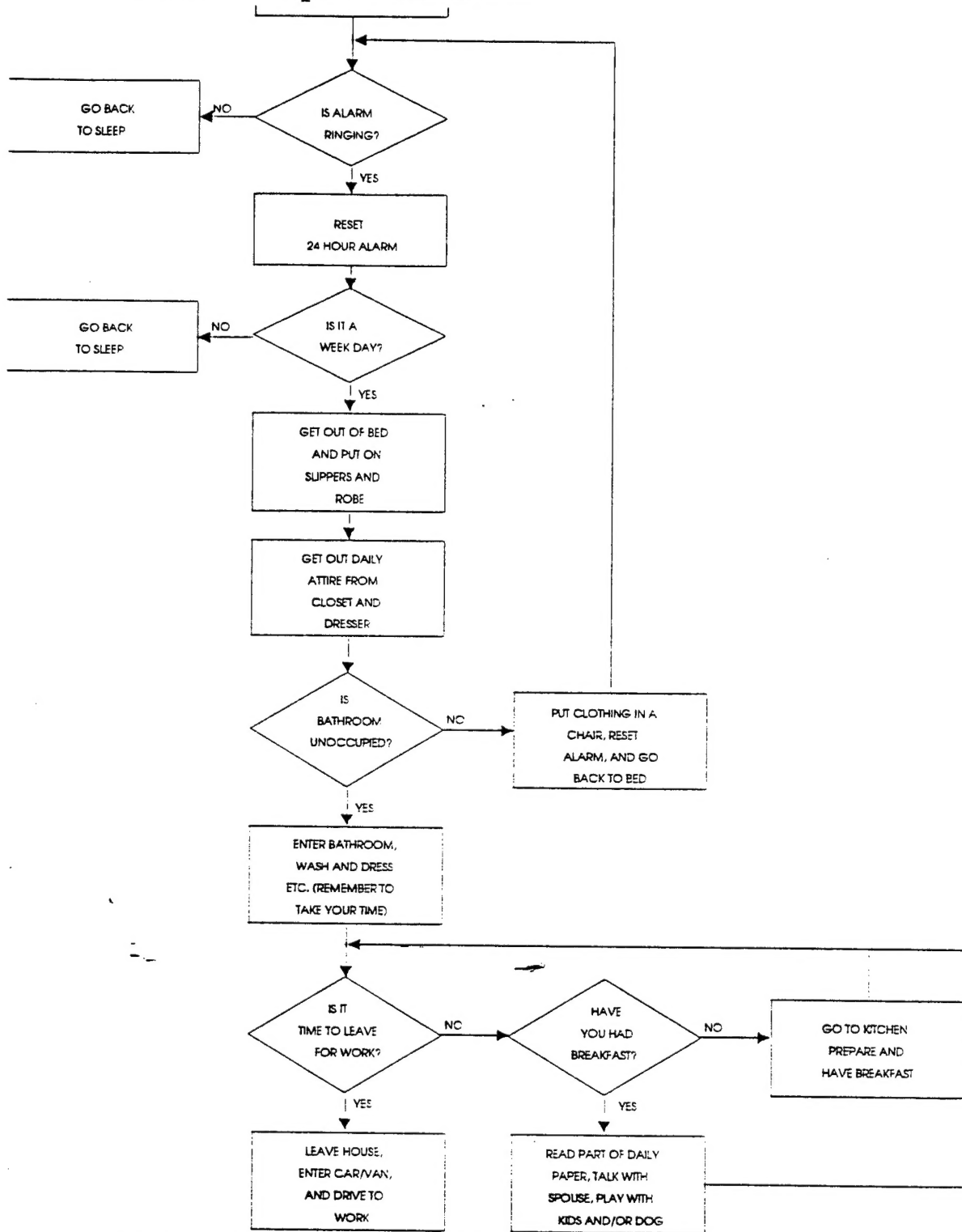
12.1.3 Output CadLeaf
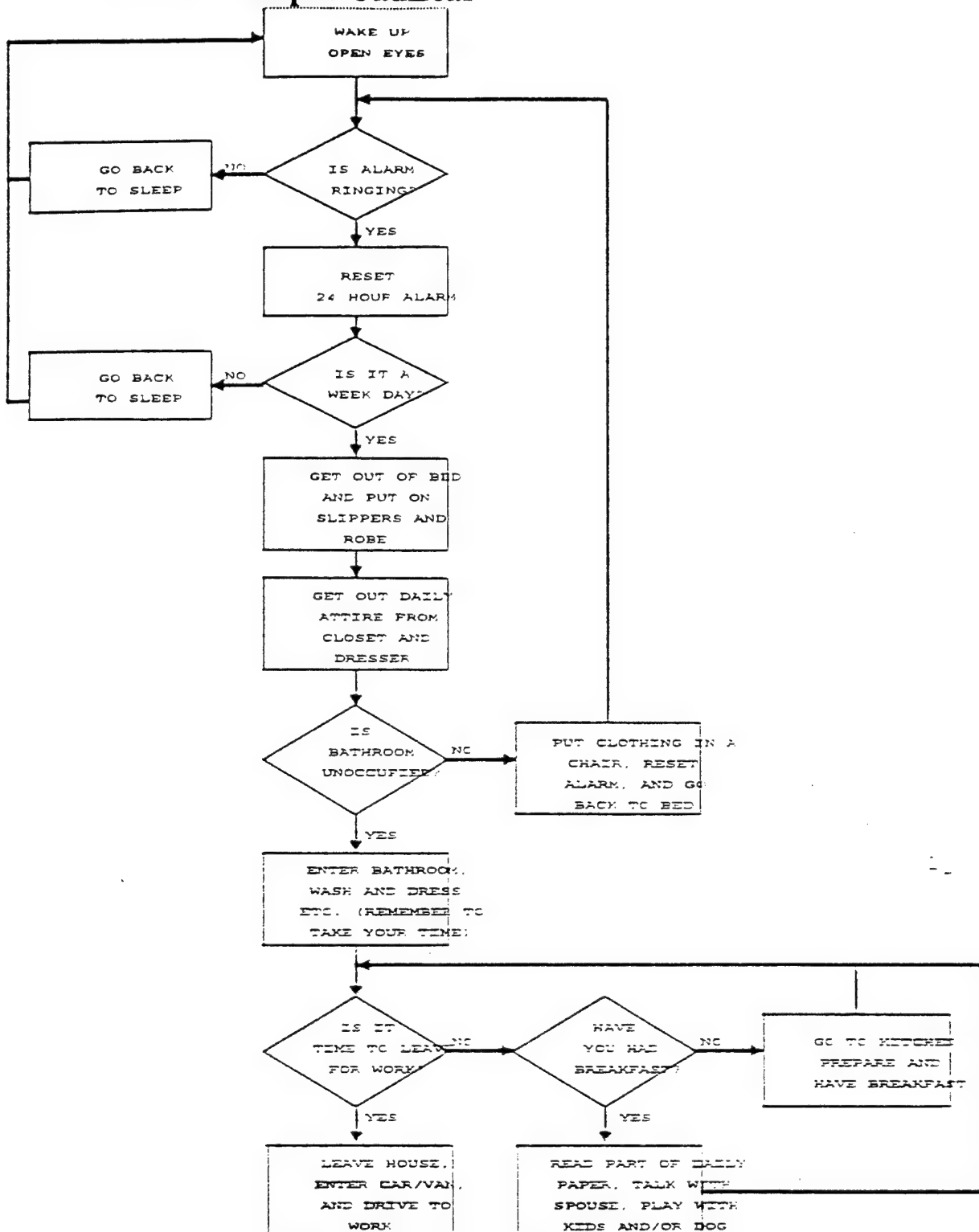
12.1.4 Output Harvard Graphics
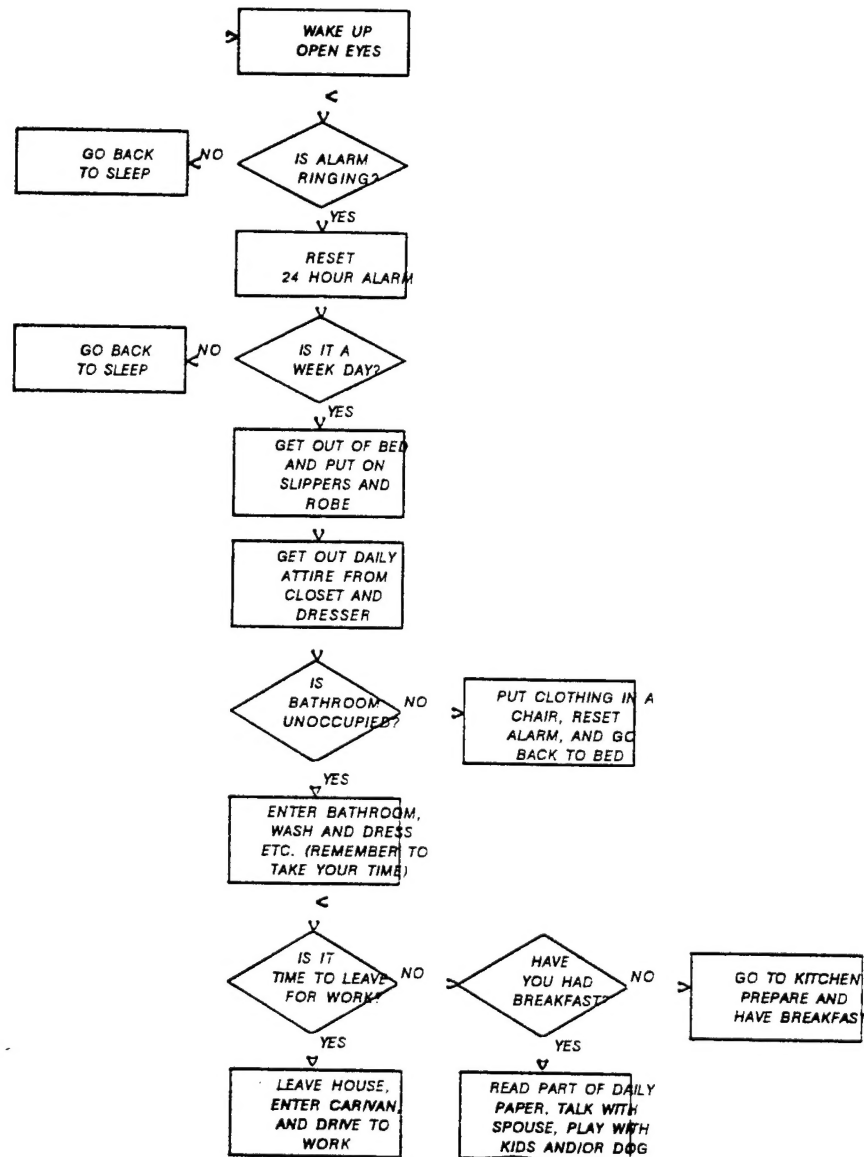
12.1.5 Output cgm2draw/IslandDraw

```
                    ┌─────────────┐
──────────────────▶ │   WAKE UP   │
                    │  OPEN EYES  │
                    └─────────────┘
```

```
┌──────────┐   NO      ◇ IS ALARM ◇
│ GO BACK  │◀────────── RINGING?
│ TO SLEEP │
└──────────┘
              │ YES
        ┌─────────────┐
        │    RESET    │
        │ 24 HOUR ALARM│
        └─────────────┘
              │
┌──────────┐  NO     ◇  IS IT A  ◇
│ GO BACK  │◀───────── WEEK DAY?
│ TO SLEEP │
└──────────┘
              │ YES
      ┌───────────────┐
      │ GET OUT OF BED │
      │ AND PUT ON    │
      │ SLIPPERS AND  │
      │    ROBE       │
      └───────────────┘
              │
      ┌───────────────┐
      │ GET OUT DAILY │
      │ ATTIRE FROM   │
      │ CLOSET AND    │
      │  DRESSER      │
      └───────────────┘
              │
        ◇   IS    ◇     NO    ┌─────────────────┐
         BATHROOM ─────────▶ │ PUT CLOTHING IN A│
         UNOCCUPIED?          │ CHAIR, RESET    │
                              │ ALARM, AND GO   │
                              │  BACK TO BED    │
                              └─────────────────┘
              │ YES
      ┌──────────────────┐
      │ ENTER BATHROOM,  │
      │ WASH AND DRESS   │
      │ ETC. (REMEMBER TO│
      │ TAKE YOUR TIME)  │
      └──────────────────┘
              │
      ◇   IS IT   ◇  NO   ◇  HAVE  ◇   NO   ┌───────────────┐
       TIME TO LEAVE ───▶  YOU HAD  ──────▶ │ GO TO KITCHEN │
       FOR WORK?           BREAKFAST?       │ PREPARE AND   │
                                            │ HAVE BREAKFAST│
                                            └───────────────┘
         │ YES              │ YES
  ┌──────────────┐   ┌──────────────────┐
  │ LEAVE HOUSE, │   │ READ PART OF DAILY│
  │ ENTER CAR/VAN,│  │ PAPER, TALK WITH │
  │ AND DRIVE TO │   │ SPOUSE, PLAY WITH│
  │   WORK       │   │ KIDS AND/OR DOG  │
  └──────────────┘   └──────────────────┘
```

12.1.6 Output IslandDraw

12.1.7 Output Ventura Publisher